the Pethick test (*Can Anaesth Soc J* 1975; 22: 115), to demonstrate the integrity of the fresh gas inflow line of the Bain circuit. This is particularly important when two breathing circuits which function quite differently share the same machine mount. Lyall and Linder assure us the connections they use are "positive and inherently fool-proof."

The new mounting system appears eminently practical as it makes use of existing equipment. Although the soda-lime no longer has any function, its presence does no harm; the authors may find it possible to save the expense of the soda-lime as the use of the circle system declines. It should be noted that the Bain system and the circle system without soda-lime have very similar characteristics and could be used with the same fresh gas flows;¹ however, for such use the fresh gas inflow port of the circle system would be better located on the inspiratory side.

The oxygen sensor, which monitors the inspired O_2 in the circle system, now measures a mean expired oxygen concentration in the reported modification. This could prove an equally valuable measurement, allowing in addition a rough estimate of the patient's O_2 consumption (inspired per cent O_2 - mean expired per cent $O_2 \times$ fresh gas flow).

The warning in regard to paediatric use because of an expiratory resistance of 1-3 cm H_2O , should be noted. It is probably of little concern as most of our spring loaded pop-off valves have a resistance in the same order; we would have no concern using this modification in small children.

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REFERENCE

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Cardiovascular collapse associated with nitrous oxide administration

To the Editor:

The case report of Davidson and Chinyanga¹ of acute cardiovascular collapse following the administration of nitrous oxide in a child with pulmo-

nary artery hypertension brings to fore the danger of nitrous oxide use in the patient with pulmonary artery hypertension. Lappas *et al.*² and Schulte-Sasse *et al.*³ graphically demonstrated the effects of nitrous oxide on pulmonary artery pressure in patients undergoing cardiopulmonary bypass procedures. Despite the argument presented by Davidson and Chinyanga, the proximal pulmonary artery pressure in their patient was elevated and certainly could have increased markedly with the addition of the nitrous oxide, resulting in right ventricular failure and cardiac arrest.

I believe more thought should be given before nitrous oxide is used in any patient and particularly any infant who has an elevated pulmonary artery pressure.

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- 2 Lappas DG, Buckley MJ, Laver MB, Daggett WM, Lowenstein E. Left ventricular performance and pulmonary circulation following addition of nitrous oxide to morphine during coronary-artery surgery. *Anesthesiology* 1975; 43: 61-9.
- 3 Schulte-Sasse Y, Hess W, Tarnow J. Pulmonary vascular responses to nitrous oxide in patients with normal and high pulmonary vascular resistance. *Anesthesiology* 1982; 57: 9-13.

REPLY

While we noted the increased impedance to right ventricular output in our young patient, we were less convinced about the elevated pressure in the right pulmonary artery being reflected to the narrowed peripheral branches of both pulmonary arteries. Despite this, nitrous oxide was introduced cautiously (N_2O/O_2 $FIO_2 = 0.5$). We completely agree with the firm warning of Dr. Mayhew on the administration of nitrous oxide to very sick patients, particularly infants whose pulmonary artery pressure is elevated.

I now use isoflurane in a mixture of air and oxygen for similar cases, with satisfying results.

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